

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

Triverus

Alaska Manufacturing Extension Partnership

Triverus Succeeds Through Collaboration

Client Profile:

Triverus LLC, based in Palmer, Alaska, is a manufacturing and engineering company with core competencies in surface cleaning vehicles, CNC processes, metal fabrication and rapid product development. Triverus provides creative job shop solutions to locals, the oil industry and the military. Alaska's small market, harsh climate, remote setting and emerging economy create extreme challenges for business. Alaska companies rise to these challenges, often creating world-class solutions by doing so. Triverus is an example of such innovation. The company employs 8 people.

Situation:

In 2001 the Navy came out with an SBIR-supported competition to develop a new method of cleaning aircraft carrier flight decks. Typically the flight deck is closed every 18 days and all planes are moved below decks. Much like sailors have done for hundreds of years, sailors manually scrub the decks to remove aircraft tire rubber, oil and grit. This creates down time and is costly.

Solution:

Triverus approached the problem from a fresh perspective, devising innovative technical solutions based on unique aircraft carrier needs rather than adapting existing technologies. This helped differentiate Triverus from the 70 other prospects and 13 other qualified applicants for Phase 1 SBIR. The \$30,000 Phase 1 award provided funding to prove up technologies. Triverus was then awarded \$750,000 in Phase 2 SBIR funding to further develop the promising technology. Triverus made the aggressive decision to deliver a fully functional vehicle that was designed from scratch. They committed to meet the form, fit and function of the aircraft carrier customer. This outstanding performance earned a Phase 3 SBIR award for \$2.4 million to deliver two fully functional cleaning vehicles. The company delivered and tested the first vehicle in August 2006, and has the potential to sell over 50 vehicles to aircraft carriers at about \$600,000 each.

Testing showed that the cleaning vehicles increased the nonskid coefficient of friction on the runway by 60 percent to 100 percent while allowing daily operations to continue with little interruption. Existing cleaning methods only provided a 5 percent improvement in the tests. As a result, Triverus' cleaning vehicles provided significant safety improvements while allowing the aircraft carrier flight deck to operate a high density of airplanes with reduced downtime for cleaning.

In addition to superior cleaning of surfaces, the technology does not wear paint, and it recycles cleaning water to eliminate storm drain runoff of oil and pollutants. The company understood the broad applications of this new product, so in 2006 it created a spin-off company, Surface Cleaning Technologies, Inc., (SCT) to commercialize the technology. SCT has received \$450,000 in start-up bank funding to date, and is performing on commercial airport surface cleaning contracts. Now SCT is being courted by equity investors, and Triverus wants to seek Phase 3 Air Force SBIR to develop that market.

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This case study demonstrates how collaboration among agencies was leveraged to provide an ongoing stream of services that supported a company along a tenuous growth path. Triverus utilized the resources of a number of service providers at specific times, each helping the company to keep an aggressive research, design, manufacturing and commercialization schedule. Triverus credits these organizations with solving a myriad of problems as their company evolved, which allowed them to focus on productive tasks that ensured their rapid success.

The Anchorage Small Business Development Center's TREND program introduced President Hans Vogel to the SBIR program at a workshop, providing coaching through SBIR Phase 1, 2, and 3, as well as startup of Triverus. The Juneau (Alaska) Economic Development Council, a regional organization, provided ongoing support and agency coordination, organizational development, competitor management, and the securing of intellectual property protection through their DoD Springboard program. MilTech at the Montana Manufacturing Extension Center (MMEC), a NIST MEP network affiliate, helped solve specific problems and plan the development of the project through SBIR phases. Near the completion of Phase 3 SBIR, the Alaska Manufacturing Extension Partnership (Ak-MEP), a NIST MEP network affiliate, provided business planning, legal and financial resources that created SCT, the spin-off company that is commercializing the technology into airfields.

Results:

- * Increased the nonskid coefficient of friction on runways by 60 percent to 100 percent.
- * Reduced runway downtime and costs for cleaning.
- * Reduced cost of clearing planes from the flight deck.
- * Awarded \$3 million in 3 phases of SBIR funding.
- * Resolved competitive issues.
- * Awarded patents on key technologies.
- * Created subsidiary company structure to allow commercialization.
- * Received \$450,000 in startup bank financing for commercial spin-off company.

Testimonial:

"I've heard of insourcing and outsourcing. This was a great example of agency sourcing. These organizations helped solve my problems, which freed up Triverus to focus aggressively on designing for form, fit and function of the customer. We would never have reached as far, and maybe not even survived the transitions, without their ongoing support."

Hans Vogel, President